

## Remarks

### Status of the Application

The Office disregarded certain of the references in the IDS filed 10/9/2003.

The Office raised various objections to the Drawings.

The Office objected to the Abstract.

The Office raised various objections to the Specification.

The Office rejected certain of the Claims under 35 USC 112.

The Office rejected each of the Claims under either 35 USC 102 or 35 USC 103, or both, based on various combinations of US patents 5,616,922 (*Reffner*), 6,421,548 (*Berman*), 5,249,077 (*Laronga*), and 5,859,434 (*Messerschmidt*).

Each of the objections to the Specification, Abstract, and Drawings are discussed below. Each of the Claims is discussed below, with discussion pertaining to each rejection applicable to that claim.

### IDS

The Office asserted that Applicant had not complied with 37 CFR 1.98(a)(2), in that Applicant had not included legible copies of certain references. Applicant traverses the Office's assertion: the IDS and accompanying references were mailed on the date indicated on the certificate of mailing, a copy of which is enclosed herewith. Accordingly, the IDS and accompanying references are considered as timely filed. See 37 CFR 1.8. Further, the Office has waived the requirement that copies of US patents and patent applications be filed with an IDS for applications filed after June 30, 2003. See 1276 OG 55. Applicant requests that the Office consider the patents and return a copy of the IDS with those references initialed.

### Objections to the Drawings

The Office objected (paragraph 3 of the Office Action) to the presence of certain reference signs not mentioned in the description. Relative to these objections, Applicant submits herewith replacement sheets, containing only the following changes:

Figure 2 - reference "293" deleted;

Figure 4 - reference "410" deleted (note that reference "402" also cited by the Office is mentioned in the specification in paragraph [0028], page 9 line 24);

Figure 5 - references "510", "592", "593", and "594" deleted (note that reference "502" also cited by the Office is mentioned in the specification in paragraph [0029], page 9 line 33);

Figure 6 - references "619", "692", "693", and "694" deleted (note that reference "602" also cited by the Office is mentioned in the specification in paragraph [0030], page 10 line 4);

Figure 7 - reference "710" deleted;

Figure 8 - references "807" and "810" deleted.

The Office's objection to references in Figure 12 have been addressed by an amendment to the specification supplying the missing references.

The Office objected (paragraph 4 of the Office Action) to the drawings as not including two references mentioned in paragraph [0043] of the description. Applicant has amended the specification to include the missing references, and submits that the corresponding objection has been cured.

The Office objected (paragraph 5 of the Office Action) to the drawings as not containing Figure 11f as stated in the specification in paragraph [0042]. Applicant requests that the Office consider the originally filed drawing sheet containing Figure 15, which also contains Figure 11f. Applicant requests that the corresponding objection be withdrawn.

The Office objected (paragraph 6 of the Office Action) to Figure 16 as being unclear about the meaning of "(t=8.0mm)". The graph in Figure 16 illustrates the transmission characteristics of a material. As those

skilled in the art readily appreciate, the transmission characteristics depend on the thickness of the material; the "t=8.0mm" legend specifies that the data presented correspond to a material thickness of 8.0mm. Applicant submits that Figure 16 is not unclear to those of ordinary skill in the art, and requests that the corresponding objection be withdrawn.

The Office objected (paragraph 7 of the Office Action) to the drawings as not showing "a region for supporting a sample ... provided on a first face ...". Applicant respectfully traverses this objection. Several of the figures illustrate sample holders having a face, which face comprises a region for supporting a sample. As examples, see Figure 4 and the discussion in paragraph [0028] (page 9 lines 24-25 referring to the sample-holding surface); Figure 6 and the discussion in paragraph [0030] (page 10 lines 5-7 referring to the sample-holding surface); Figure 7 and the discussion in paragraph [0031] (page 10 lines 16-18 referring to the sample-holding surface); Figure 9 and the discussion in paragraph [0034] (page 11 lines 9-11 referring to deposition of a sample on the holder). Applicant requests that the corresponding objection be withdrawn.

#### Objections to the Specification

The Office objected to the Abstract, quoting MPEP 608.01(b), and asserting that "... is objected to because it fails to provide a technical feature of the invention." Office Action paragraph 8. Applicant notes that there is no requirement that the Abstract contain **every** technical feature of the invention; indeed, that would conflict with the purpose of the Abstract: "The purpose of the abstract is to enable the United States Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure." See 37 CFR 1.72; MPEP 608.01(b). The Abstract as originally presented does provide a general description of the invention and notable features and applications thereof. Applicant submits that the Abstract as originally presented complies with the statutory and regulatory requirements, and requests that the corresponding objection be withdrawn. Alternatively, if the Office requires a particular feature be included in the Abstract, Applicant requests that the Office restate the objection with particularity.

The Office objected to the brief descriptions of Figures 3-6 and 7-8, asserting that they were unclear: "It is unclear the difference(s) of each figures [sic] from the information provided for the figures 3-6 as provided [sic]." Office Action paragraph 11. 37 CFR 1.74 requires that "When there are drawings, there shall be a brief description of the several views of the drawings ...". See 37 CFR 1.74. 37 CFR 1.77 requires that the specification include "(7) Brief description of the several views of the drawing." See 37 CFR 1.77. Applicant notes that there is no requirement in the statutes or regulations that the brief description of the drawings explain differences between the drawings, and traverses the Office's objection. See, e.g., 37 CFR 1.77; MPEP 608.01(f). The brief descriptions of figures 3-6 and 7-8 clearly and accurately, and briefly, describe the corresponding drawings. Applicant submits that the brief descriptions of the drawings comply with applicable law, and requests that the corresponding objection be withdrawn.

The Office objected to the specification on page 10, line 26, requesting clarification of the meaning of "ATR". The term "ATR", in the context of Applicant's invention, as generally understood in the art, and as explicitly defined in the specification at paragraph [0017] on page 5 lines 26-27, refers to "attenuated total reflectance." Applicant requests that the objection be withdrawn.

The Office objected to the specification as not providing antecedent basis for all of the claimed subject matter. While Applicant traverses this objection, Applicant has amended the specification to include explicit recitation of all of the limitations in the originally filed claims. Note that the information added to the specification is entirely drawn from the claims as originally filed, and consequently is not new matter. See MPEP 608.01(I); MPEP 608.04. Applicant submits that the corresponding objection has been cured.

#### Summary of the Claims

Claim	status	Claim	status
1	Canceled	21	No change
2	Amended to depend from 10	22	No change
3	Amended to depend from 10	23	Amended to delete one coating
4	Rewritten in independent form	24	Canceled

5	Canceled	25	Canceled
6	Canceled	26	Canceled
7	Canceled	27	Rewritten in independent form
8	Canceled	28	No change
9	Canceled	29	Amended to depend from 27
10	Rewritten in independent form	30	Amended to depend from 27
11	No change	31	Amended to depend from 27
12	No change	32	No change
13	Amended to depend from 10	33	No change
14	Amended to depend from 10	34	No change
15	Amended to depend from 10	35	No change
16	Amended to depend from 10	36	Rewritten in independent form
17	No change	37	No change
18	No change	38	No change
19	No change	39	Amended to clarify definition
20	No change	40	Amended to clarify definition

#### **Independent Claim 10, and Claims 2-3 and 11-23 depending therefrom**

Claim 10 relative to the combination of *Berman* and *Laronga*. The Office rejected Claim 10 under 35 USC 103 as obvious in view of the combination of *Berman* and *Laronga*. To establish a *prima facie* case of obviousness, the art must, *inter alia*, teach or suggest every limitation of the claims. See MPEP 2142. Further, there must be some rationale for combining the references. See, e.g., MPEP 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Because the art does not teach or suggest all the limitations of Claim 10, and because there is not the requisite rationale for combining the references, Applicant traverses this rejection.

*Berman* teaches the use of materials suitable for ATR operation with infrared light, for use in an in vitro blood glucose sensor. Live human tissue, such as a finger, is pressed against the ATR material. Infrared spectroscopy is used to analyze the response of the live tissue to the infrared light, and determine the glucose level therein. *Berman* has no teaching or suggestion of ex vitro samples disposed on a surface of the ATR material – such a sample would defeat the objective of *Berman's* invention which is to noninvasively determine glucose level in live human tissue. Further, *Berman* has no teaching or suggestion of using visible light – such light would not provide any information useful in the determination of blood glucose level. Further, *Berman's* apparatus would fail if the ATR material were not significantly thicker than those in Claim 10 – the pressure of the finger required for *Berman's* apparatus to function would break the material.

*Laronga* teaches a microscope slide and system configured to illuminate the slide from the edge. *Laronga* has no teaching or suggestion of infrared light, not surprising since *Laronga* is only concerned with visible examination in an optical microscope. *Laronga* further has no teaching or suggestion of infrared spectroscopy, or of any adaptation that would allow infrared spectroscopy (e.g., the materials in *Laronga's* slide do not need to transmit infrared light).

The Office's proposed combination of *Berman* and *Laronga* is impermissible since it would destroy the utility of *Berman's* apparatus. See, e.g., MPEP 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Further, there is no teaching or suggestion in either of the references to combine the thick ATR material used in *Berman's* infrared spectroscopy apparatus with the thin infrared opaque material used in *Laronga's* visible light microscope slide. The only suggestion of an apparatus with the infrared and optical properties claimed, and the dimensions claimed, is in Applicant's application.

Since the combination is improper, and since the combination does not teach or suggest all the limitations of Claim 10, there is no *prima facie* case of obviousness of Claim 10. Accordingly, Applicant submits that Claim 10 is in condition for allowance. Applicant further submits that, in combination with the remarks below, Claims 2-3 and 11-23 depending from Claim 10 are also in condition for allowance. See MPEP 2143.03; *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claims 2-3, 13-15 relative to *Reffner* and *Berman*. As discussed above, *Berman* does not teach or suggest an apparatus with the IR and visible optical properties, and dimensions, of parent Claim 10. *Reffner* mentions materials common to those suitable in Applicant's invention, but teaches them in use in a multilayer apparatus that requires greater thicknesses than in Applicant's claim, not surprising since *Reffner's* teaching only concerns infrared spectroscopy, and has no teaching or suggestion of a sample holder that would be suitable for use with both infrared spectroscopy and with visible optical microscopes. Accordingly, since the art, alone or in combination, does not teach or suggest all the limitations of Claims 2-3 and 13-15, there is no *prima facie* case of anticipation or obviousness. See MPEP 2131; MPEP 2142.

Claims 16, 18-19 and 22-23 relative to *Berman*. As discussed above, the combination of *Berman* and *Laronga* does not establish a *prima facie* case of obviousness of parent Claim 10. *Berman* alone does not establish such a case, either. Further, the coatings recited in Claim 23 are not taught or suggested in the art.

#### **Independent Claim 4**

Claim 4 has been rewritten in independent form, and a limitation specifying that the region is adapted to support a sample disposed thereon in a relatively thin layer. The Office rejected Claim 4 based on *Berman*. As discussed above, *Berman's* apparatus requires live human tissue, such as a finger, pressed against a thick ATR material. *Berman's* apparatus is inoperable for its intended purpose if an ex vitro sample is disposed on it, since *Berman's* apparatus is useful for noninvasive determination of blood glucose in live tissue. Accordingly, since *Berman* does not teach or suggest all the limitations of Claim 4, there is no *prima facie* case of anticipation or obviousness of Claim 4. See MPEP 2131; MPEP 2142.. Applicant submits that Claim 4 is in condition for allowance.

#### **Independent Claim 27, and Claims 28-38 depending therefrom**

Claim 27 relative to the art. Claim 27 has been rewritten in independent form including all, but only, the limitations of the base and any intervening claims. The scope of Claim 27 is therefore unchanged from its original presentation.

As discussed above relative to Claim 10, none of the art can be properly combined to yield an apparatus with infrared and visible properties, and dimensions, as in Claim 27. The addition of *Messerschmidt's* thick ATR crystal and holder does not supply the missing teaching. Further, similar to the discussion above relative to Claim 10, the art does not teach or suggest all the limitations of Claim 27. Accordingly, there is no *prima facie* case of anticipation or obviousness of Claim 27. Applicant submits that Claim 27 is in condition for allowance. Applicant further submits, in combination with the remarks below, that Claims 28-38 depending from Claim 27 are also in condition for allowance. See MPEP 2143.03; *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claim 30 relative to 35 USC 112. The Office rejected Claim 30 as reciting numerous materials, but "fail[ing] to list the material as the one selected from a group of claimed types of materials." Office Action paragraph 14(b). The Office cited *Ex parte Markush*, 1925 C.D. 126 (Comm'r Pat. 1925). Applicant traverses the Office's interpretation of the law, apparently required Markush language, as applied to claiming in the alternative. The decision cited by the Office allows claiming in the alternative, but does not limit such claiming to the form required by the Office Action. Alternative expressions using "or" are acceptable. See MPEP 2173.05(h)II; *In re Gaubert*, 524 F.2d 1222, 187 USPQ 664 (CCPA 1975). Applicant has amended Claim 30 to explicitly recite the "or", and submits that the corresponding rejection has been overcome.

#### **Independent Claim 39**

The Office rejected Claim 39 as anticipated by *Berman* and by *Reffner*. To anticipate a claim, the art must teach every limitation of the claim. See MPEP 2131.. Claim 39 originally recited the limitation to a sample holder for cancer analysis, and Applicant has amended Claim 39 to more explicitly recite the disposition

of cancer cells in a relatively thin layer. As discussed above, neither *Berman* nor *Reffner* teaches or suggests the use of thin layer samples, or the use of sample holders in cancer analysis. Accordingly, there is no *prima facie* case of anticipation or obviousness of Claim 39. Applicant submits that Claim 39 is in condition for allowance.

#### Independent Claim 40

Claim 40 is limited to a cervical cancer screening apparatus, including a sample holder having specific optical properties. The Office rejected Claim 40 as anticipated by *Berman* and by *Reffner*. Applicant respectfully traverses this rejection. To anticipate a claim, the art must teach every limitation of the claim. See MPEP 2131.. However, neither *Berman* nor *Reffner* teach or suggest cancer screening, and neither teaches or suggests an apparatus suitable for cancer screening as in Claim 40, and neither teaches or suggests analysis on returned light to determine a characteristic related to cancer. Accordingly, there is no *prima facie* case of anticipation or obviousness. Applicant submits that Claim 40 is in condition for allowance.

#### Conclusion

Applicant has responded to each and every rejection and urges that the Claims as presented are in condition for allowance. Applicant requests expeditious processing to issuance.

Respectfully submitted,



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date

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